

REMARKS

Applicants have amended claims 1-7, 11-12, 14-20, 24-25, and 27, and canceled claims 6, 19, and 28 without prejudice. Accordingly, claims 1-5, 7-18, 20-27, and 29 are presented for examination, with claims 1, 14, and 27 in independent form.

Specification

The Examiner objected to the disclosure because in the "Description of Drawings" section, Figures 5A and 5B were not separately addressed. This error was typographical in nature, and applicants have amended the corresponding portions in the Description of Drawings in accordance with the Examiner's comments. Withdrawal of the Examiner's objection to the specification is therefore requested.

Claim Objections

The Examiner objected to claims 11, 12, 24, and 25, noting that although claims 11 and 24 recite a "third window surface" and parent claims 1 and 14 recite a "first window surface", there is allegedly no recitation of a "second window surface" in claims 11 and 24, or in parent claims 1 and 14. To clarify the relationship between various claim elements, Applicants have amended claims 1-7 and 14-20 to recite a "first surface" and have amended claims 11, 12, 24, and 25 to recite a "third surface." Applicants further note that claims 1, 8-10, 14, and 21-23 recite a "second surface." Accordingly, Applicants believe that apparent discrepancy pointed out by the Examiner is resolved by these amendments, and therefore request withdrawal of the Examiner's objection to claims 11, 12, 24, and 25.

Claim Rejections – 35 U.S.C. §102

Claims 1-4, 7-13, and 27-29 have been rejected as being allegedly anticipated by Goldberg et al., U.S. Patent No. 5,854,865 ("Goldberg"). Applicants respectfully disagree for the following reasons.

Applicants have amended claim 1 based in part on the subject matter of previously pending claim 6, so that claim 1 recites a first surface of the optical fiber, which has "a normal

direction that is not parallel to a direction of the radial axis at the first surface,” is also “substantially parallel to the longitudinal axis of the optical fiber at a point where the pump radiation is incident on the first surface.” Applicants have also amended claim 27 based in part on the subject matter of previously pending claim 6, so that claim 27 recites methods of pumping a fiber laser where pump radiation is injected into the fiber laser “through a surface of the fiber laser,” the surface having “a normal direction that is not parallel to a direction of the radial axis at the surface,” and the surface being “substantially parallel to the longitudinal axis at a point where the pump radiation is incident on the surface.” Goldberg does not disclose such fibers or methods.

To the contrary, in Goldberg’s fibers, the surfaces through which pump radiation enters the fiber do not have “a normal direction that is not parallel to a direction of the radial axis at the (first) surface.” In the Office Action, the Examiner identifies surface 24 in Goldberg as corresponding to the “first surface” in claim 1 or the “surface” in claim 27. However, Applicants submit that, based on claims 1 and 27, the outer surface of cladding 10 of Goldberg’s fibers corresponds most closely to the “first surface” in claim 1 or the “surface” in claim 27. The outer surface of cladding 10 (see, e.g., Goldberg, Figs. 1 and 3) has a surface normal that is parallel to a direction of the radial axis of Goldberg’s fibers at the cladding surface. Therefore, Goldberg’s fibers do not include a (first) surface having a normal direction that is not parallel to a direction of the radial axis at the (first) surface, as required by claims 1 and 27. Furthermore, there is no suggestion in Goldberg to modify his fibers to provide the claimed fibers and methods, at least because it is not clear, given the shapes of the fibers Goldberg discloses, how it would even be possible to modify Goldberg’s fibers to cover the claimed fibers and methods.

Alternatively, if we assume, for the sake of argument only, that surface 24 in Goldberg’s fibers corresponds to the “first surface” of claim 1 and the “surface” of claim 27 (which we do not concede), Goldberg still fails to provide the subject matter of claims 1 and 27. As shown, for example, in Figs. 1 and 3 of Goldberg, surface 24 is not “substantially parallel to the longitudinal axis of the optical fiber at a point where the pump radiation is incident on the (first) surface,” as required by claims 1 and 27. Instead, surface 24 is disposed at a non-zero angle with respect to

the longitudinal axis of Goldberg's fibers. Therefore, even assuming this alternative assignment of features of Goldberg's fibers, there still is no disclosure or suggestion in Goldberg that provides the claimed fibers and methods.

In view of the foregoing, applicants respectfully request reconsideration and withdrawal of the rejection of claims 1 and 27 as allegedly anticipated by Goldberg. Claims 2-4, 7-13 and 29 depend from either claim 1 or claim 27, and are therefore patentable for at least the same reasons. Accordingly, applicants respectfully request reconsideration and withdrawal of the rejection of these claims as well.

Next, claims 1, 6-10, 14, 19-23, and 27-29 have been rejected as being allegedly anticipated by Culver et al., U.S. Patent No. 5,923,694 ("Culver"). Applicants respectfully disagree for the following reasons.

The amendments to claims 1 and 27 have been discussed above. Claim 14 was also amended to recite a fiber laser assembly that includes an optical fiber, where a first surface of the optical fiber, which has "a normal direction that is not parallel to a direction of the radial axis at the first surface," is also "substantially parallel to the longitudinal axis of the optical fiber at a point where the pump radiation is incident on the first surface." Culver does not disclose the fibers, assemblies, and methods covered by claims 1, 14, and 27, respectively.

Culver's optical fibers include a wedge 34 for admitting light into the fibers. The surface that corresponds most closely to the "first surface" of claims 1 and 14, and the "surface" of claim 27, is the right-hand surface of wedge 34 shown in Fig. 6 of Culver. The longitudinal axis of Culver's fibers is collinear with core 20. The "(first) surface" of wedge 34 is not substantially parallel to the longitudinal axis of Culver's fibers, as required by claims 1, 14, and 27. Instead, as shown in Fig. 6, the "(first) surface" of wedge 34 is positioned at a non-zero angle with respect to the longitudinal fiber axis. Thus, Culver does not disclose the fibers, assemblies, and methods of claims 1, 14, and 27, and there is no suggestion in Culver to provide the claimed fibers, assemblies, and methods.

With respect to previously pending claims 6 and 19, the Examiner has pointed to Fig. 7 of Culver as evidence that Culver's (first) surface is allegedly substantially parallel to the longitudinal axis of Culver's optical fibers. In fact, Fig. 7 is a side view of a wound fiber pack. Fig. 6 provides a cross-sectional view of the same fiber pack. While the "(first) surface" of Culver's wedge 34 in Fig. 7 may be parallel to wound pack axis 29, this axis is different from the longitudinal axis of Culver's fibers. As discussed above, the longitudinal axis of Culver's fibers is collinear with core 20, and approximately perpendicular to wound pack axis 29. Thus, Fig. 7 merely reinforces the notion that Culver does not disclose the fibers, assemblies, or methods of claims 1, 14, and 27.

In view of the foregoing, applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 14, and 27 as allegedly anticipated by Culver. Claims 7-10, 20-23, and 29 depend from one of claims 1, 14, or 27, and are therefore patentable for at least the same reasons. Accordingly, applicants respectfully request reconsideration and withdrawal of the rejection of these claims as well.

Next, claims 1-5, 7-13, and 27-29 have been rejected as being allegedly anticipated by Gapontsev et al., International Publication No. WO/10868 ("Gapontsev"). Applicants respectfully disagree for the following reasons.

The amendments to claims 1 and 27 have been discussed above. Gapontsev simply does not disclose the fibers and methods covered by claims 1 and 27. Gapontsev's fiber amplifiers include a fiber port (e.g., multi-mode fiber 6a in Fig. 2 of Gapontsev) that admits light to his fiber 1. Light from a laser diode 4a enters multi-mode fiber 6a through a surface (not labeled in Fig. 2, but three arrows point from diode 4a to the surface). This surface corresponds most closely with the "(first) surface" recited in claims 1 and 27. However, Gapontsev's surface is not "substantially parallel to the longitudinal axis of the optical fiber at a point where the pump radiation is incident on the (first) surface," as required by claims 1 and 27. Instead, as shown in Fig. 2, Gapontsev's surface is positioned at a non-zero (e.g., nearly 90-degree) angle with respect to the longitudinal axis of fiber 1, which is collinear with inner core 2. Thus, Gapontsev does not

disclose the fibers and methods covered by claims 1 and 27, and there is no suggestion in Gapontsev to modify his fiber amplifiers to cover the claimed fibers and methods.

In view of the foregoing, applicants respectfully request reconsideration and withdrawal of the rejection of claims 1 and 27 as allegedly anticipated by Gapontsev. Claims 2-5, 7-13, and 29 depend from either claim 1 or claim 27, and are therefore patentable for at least the same reasons. Accordingly, applicants respectfully request reconsideration and withdrawal of the rejection of these claims as well.

Applicants further note that the amendments made above are made to distinguish the above references that show very substantial (in most cases, almost 90-degree) differences between the light entry surface and fiber axis orientation. Such amendments should not be read as precluding a reasonable range of equivalence with respect to the orientation of the entry surface.

Claim Rejections – 35 U.S.C. § 103

Claims 14-17 and 20-26 have been rejected as being allegedly unpatentable over Goldberg in view of Culver, in further view of either Chang (U.S. Patent No. 6,704,341, “Chang”), or Mizui et al. (U.S. Patent No. 6,721,347, “Mizui”). Separately, claims 14-18 and 20-26 have been rejected as being allegedly unpatentable over Gapontsev in view of Culver, in view of either Chang or Mizui. Applicants respectfully disagree with these rejections.

As discussed above, neither Goldberg nor Gapontsev discloses the assemblies covered by claim 14. Furthermore, even if one or more of Culver, Chang, or Mizui were combined with either Goldberg or Gapontsev, which applicants do not concede, the result still would not cover the claimed assemblies, at least because any of the proposed combinations of references still would not provide a first surface that has “a normal direction that is not parallel to a direction of the radial axis at the surface,” where the first surface is “substantially parallel to the longitudinal axis at a point where the pump radiation is incident on the surface.”

Therefore, applicants submit that claim 14 is patentable over all of the proposed combinations of references. Accordingly, applicants respectfully request reconsideration and

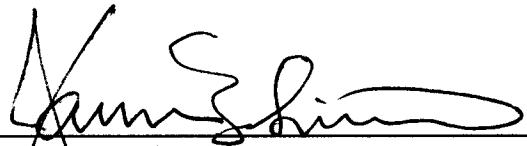
withdrawal of the rejection of claim 14 under 35 U.S.C. § 103. Further, each of claims 15-17 and 20-26 depends from claim 14, and is therefore patentable for at least the same reasons. Thus, applicants request withdrawal of the rejection of these claims as well.

CONCLUSION

Applicants submit that all pending claims are now allowable and respectfully request a notice of allowance. No new matter has been added by the amendments made herein. The fee in the amount of \$120.00 for one month extension of time, inasmuch as September 2, 2006 was a Saturday and September 4, 2006 was a holiday, is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply all charges or credits to Deposit Account No. 06-1050, referencing Attorney Docket No. 14624-003001.

Respectfully submitted,

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